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*William C. Norvell, Jr.*  
William C. Norvell, Jr.

**BEFORE THE PATENT OFFICE BOARD OF PATENT  
AND INTERFERENCE APPEALS**

APPLICANTS: LOUIS J. WARDLAW

FILING DATE: JUNE 20, 2003

SERIAL NO.: 10/600,921

TITLE: APPARATUS AND METHOD  
FOR ELEVATED  
TEMPERATURE WELD TESTING§

ATTORNEY DOCKET NO.  
002663/030490

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**BRIEF OF APPELLANT, LOUIS WARDLAW**

10/10/2007 EFLQRES 00000015 10600921

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255.00 OP

**REAL PARTY IN INTEREST**

The real party in interest is: Louis J. Wardlaw.

### **RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

### **STATUS OF CLAIMS**

The claims on appeal are claims 1 through 8, inclusive, the only claims in the application. All of these claims stand finally rejected by the Examiner in a FINAL Office Action, dated 03/08/2006.

**STATUS OF AMENDMENTS AFTER FINAL REJECTION**

No amendment was filed after the final rejection set forth in the Office Action dated 03/08/2006.

## **SUMMARY OF CLAIMED SUBJECT MATTER**

Claims 1 and 5 are the only independent claims in the application and on appeal. Claim 1 is a method claim and Claim 5 is an apparatus claim, presented in the form of a system.

Claim 1 is directed to a method for detecting flaws in a weld connecting a wellhead to a casing, such as that found on a subterranean oil and/or gas well. If the weld is defective such that it permits ejection of gas into the atmosphere near the weld, the flaw will be identified due to a marker component in a test gas component being detected ("Summary of The Invention", pp. 6-7 of specification). One particular feature of the invention is that the method is performed at "an elevated temperature" (specification, pp. 6, lns. 14-17). The method includes the steps of connecting to an injection port a pressurized gas composition having a marker sub-composition including a non chlorine-containing hydrocarbon. The gas composition is then injected into the injection port while the weld is still at an elevated temperature. The source of the pressurized gas is monitored to detect a possible loss in pressure. A probe is passed over the weld being checked to detect the presence of the non chlorine-containing gas leaking through the weld.

Dependant Claim 2 specifies that the marker is a particular tetrafluoroethane.

Dependant Claim 3 recites that the marker is a halogen-containing hydrocarbon which is free of Refrigerant 12.

Dependant Claim 4 specifies that the elevated temperature is at substantially 500 degrees F.

Independent Claim 5 is a "system" claim, and calls for: (a) a source of pressurized gas; (b) a gas detector probe for detecting a non chlorine-containing hydrocarbon gas; and (c) establishment of fluid communication between the pressurized gas and the weld, while the weld is maintained "at an elevated welding temperature".

Dependant Claim 6 defines the marker gas as a tetrafluoroethane.

Dependant Claim 7 provides that the marker gas is a non chlorine-containing hydrofluorocarbon.

Dependant Claim 8, depending from Claim 6, provides that the marker gas is free of Refrigerant 12.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The sole ground of rejection to be reviewed on appeal is: whether Claims 1-8 are unpatentable under 35 U.S.C. 103(a) over Wardlaw, III (4,596, 135) in view of the patent to Henry.

## ARGUMENT

Applicant agrees with the Examiner's summation of the teaching of the Wardlaw '135 reference, as it applies to the claims at issue. Applicant further agrees with the Examiner's acknowledgement that "Wardlaw does not teach the marker sub-composition hydrocarbon being non-chlorine containing." (final Office Action, p. 2). To this teaching, the Examiner then applied the Henry reference, stating that "Henry teaches a method of detecting leaks by detecting traces of a composition comprising 1,1,12-tetrafluoroethane (Col. 2, lines 58-60) in gaseous form (Col. 3, lines 5-6), which is a non-chlorine-containing hydrocarbon." (final Office Action, p. 2). The Examiner further concluded that "(i)t would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Henry with the method of Wardlaw because, as Henry teaches, use of chlorine - containing hydrocarbons or Refrigerant 12 causes damage to the ozone layer." (final Office Action, pp. 2-3).

There are three important points that clearly distinguish the Henry reference from the claims at issue and that do not make Henry applicable in a combination of references rejection under 35 U.S.C. 103 (a). First, the teachings of Henry are strictly limited to the use of a combination of a non-chlorine-containing gas and a refrigerant lubricant in a method for detection of leaks in a refrigerant system. The art area of Henry's teachings is, thus clearly non-analogous. It is a long distance, technically, from being an ordinary artisan in the area of air conditioning and similar systems, and an ordinary artisan of a oil field well head welder.

Secondly, Henry's methods specifically require the incorporation of a lubricant. There is no teaching in Henry of a marker composition being only a non-chlorine containing gas. Thus, to apply Henry to the present claims would require modification, to delete the lubricant, which is, of course, not taught by either reference. Where is it taught in either references to make such a modification? If Henry's composition were used in Applicant's well head welding technique, the lubricant composition would adversely impact not only the welding procedure (i.e., susceptible of causing a fire during the high temperature welding technique), but the integrity of the completed weld itself, by bleeding through the weld and/or abating or delaying the solidification stage of the completed weld. In fact, use of Henry's complete composition would defeat the entire purpose of Applicant's welding method by causing the detection composition to itself contain a component likely to contribute to a weld deficiency, and a leak.

Additionally, and thirdly, Henry teaches a method applicable to temperatures of a very cold nature, and close to freezing, whereas Applicant's claims are directed to a method where the pressurized gas and the non-chlorine containing marker are injected through an injection port while the weld is at an "elevated" temperature, i.e. at a temperature clearly not contemplated or taught by Henry. In fact, Claim 4 of the present application specifically recites that the wellhead is at "substantially 500 degrees F." while the gas is in contact with a weld.

The above distinguishing arguments are equally applicable to dependant claims 2, 3 and 4.

Turning to independent Claim 5, there is nothing in Henry to suggest that a non hydrochloride-containing gas can be detected by a probe (element "(b)") while the weld is



maintained "at an elevated welding temperature" (limitation recital in "(c)"). Again, Henry addresses only the art of refrigeration, and not the art of high temperature welding.

Dependant Claims 6, 7 and 8 are equally patentable over this combination of references for the same reasons as set forth with respect to Claim 5.

The Supreme Court has issued its opinion in *KSR*, regarding the issue of obviousness under 35 U.S.C. 5 103(a) when the claim recites a combination of elements of the prior art. as is clearly the case with each of the claims on appeal. *KSR Int'l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007). The Court reaffirmed the Graham factors in the determination of obviousness under 35 U.S.C. 5 103(a). The four factual inquiries under Graham are:

- (a) determining the scope and contents of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating evidence of secondary consideration.

*Graham v. John Deere*, 383 U.S. 1, 17-18, 148 USPQ 459,467 (1966).

The Court did not totally reject the use of "teaching, suggestion, or motivation" as a factor in the obviousness analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. 5 103(a). The Court rejected a rigid application of the "teaching, suggestion, or motivation" (TSM) test, which required a showing of some teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the prior art elements in the manner claimed in the application or patent before holding the claimed subject matter to be obvious. The Court noted that the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and that it was "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. The Court specifically stated:

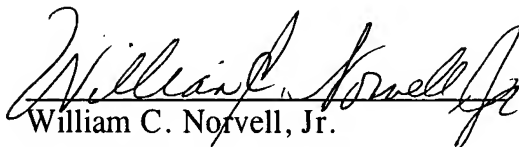
Often, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

*KSR*, slip op. at 14 (emphasis added). This is precisely what the Examiner failed to do. While he stated that Henry teaches that chlorine-containing hydrocarbons cause damage to the ozone layer, he did not state precisely why the teaching of Henry can be combined with the primary reference of Wardlaw III. In formulating a rejection under 35 U.S.C. 5 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a

person of ordinary skill in the art would have combined the prior art elements in the manner claimed.

Respectfully submitted,

10/5/07  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
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## CLAIMS APPENDIX

1. A method of detecting flaws in a weld connecting a wellhead to a casing, the method comprising the steps of:

(a) connecting a source of pressurized gas composition to an injection port in the wellhead in fluid communication with the weld, said pressurized gas composition comprising a gas mixture including a marker sub-composition comprising at least a marking amount of a non chlorine-containing hydrocarbon;

(b) injecting said pressurized gas composition including said hydrocarbon through said injection port while the weld is at an elevated temperature;

(c) monitoring the source of pressurized gas composition for detecting losses in pressure; and

(d) passing a non chlorine-containing hydrocarbon gas detector probe over the weld for detecting non chlorine-containing hydrocarbon gas leaking through the weld.

2. The method of claim 1 wherein said marker sub-composition is 1,1,1,2-tetrafluoroethane.

3. The method of claim 1 wherein said marker sub-composition gas is a halogen-containing hydrocarbon and is free of Refrigerant 12.

4. The method of claim 1 wherein fluid communication is established between said pressurized gas composition and the weld while the temperature of the wellhead is at substantially 500.degree. F.

5. A system for determining flaws in a weld connecting a terminal flange to a pipe, comprising:

(a) a source of pressurized gas composition for connection to a wellhead injection port establishing fluid communication between said source of pressurized gas composition and said weld;

(b) a gas detector probe for detecting a non chlorine-containing hydrocarbon gas leaking through said weld; and

(c) wherein fluid communication is established between said pressurized gas composition and said weld while the weld is maintained at an elevated welding temperature for detecting flaws in said weld at said elevated temperature.

6. The system of claim 5 wherein said pressurized gas composition comprises a gas sub-composition including a marker gas of 1,1,1, 2-tetrafluoroethane.

7. The system of claim 5 wherein said marker gas is a non chlorine-containing hydrofluorocarbon.

8. The system of claim 6 wherein said marker gas is free of Refrigerant 12.



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**TRANSMITTAL LETTER**

Sir:

Enclosed herewith regarding the above-identified patent are:

1. Check No. 219800 in the amount of \$255;
2. Brief of Appellant, Louis Wardlaw; and
3. Postal return card.

The commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment to Deposit Account 02-2265. A duplicate copy of this letter is enclosed for accounting purposes.

10/5/07  
Date

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